



Vaping devices (e-cigarettes) consist of cartridges with liquid nicotine mixtures and lithium ion batteries. These devices can pose a threat to human health and the environment if they are not handled and disposed of properly. Nicotine cartridges and lithium ion batteries fall under federal disposal requirements for hazardous and universal wastes respectively. These devices, and their components, should not be thrown in the regular trash or flushed down a sink. Instead, these items should be taken safely to a hazardous waste facility for proper disposal. A third-party company can be utilized to transport hazardous waste.



## Best Practices for Handling and Disposal of Vaping Wastes

Vaping devices and their components are subject to Resource Conservation Recovery Act (RCRA) hazardous waste laws for handling and disposal when they are confiscated and collected in a school setting. The following are best practices for handling the devices and their wastes:

- Identify a hazardous waste transportation or disposal facility that can accept the vaping wastes and help your school determine proper management and storage of the wastes.
- Never throw vaping devices or their batteries in the trash or store them in desk drawers, office cabinet, or similar receptacles. Nicotine and batteries are special kinds of wastes that do not go to landfills. Nicotine is considered hazardous waste while batteries are universal waste. Kentucky Division of Waste Management (DWM) has different rules for how each type of waste is handled, which is explained more in the next section.
- Turn off the device and remove the rechargeable battery if possible to reduce the weight of anything to be disposed. If the device is not yours have the user do it.
- Place the separated nicotine cartridges and lithium ion batteries in separate labeled leak-proof containers that can be sealed when not disposing of wastes (see additional requirements below).
- Store all items in a cool temperature environment.
- Train employees on proper management, disposal and emergency response procedures for hazardous and universal wastes.
- The two waste streams (cartridges and batteries) have specific handling requirements described below.
- Other options for disposal exist for facilities that become household hazardous waste collectors for those who occupy school grounds (students, teachers, etc.). Contact your local solid waste coordinator for details: <https://eec.ky.gov/Environmental-Protection/Waste/recycling-and-local-assistance/Documents/Solid%20Waste%20Coordinators.pdf>.

## Nicotine Liquid and Cartridges– A Hazardous Waste

The nicotine liquid found in most vaping devices is classified as a hazardous waste. The United States Environmental Protection Agency (EPA) defines hazardous waste as waste with properties that make it dangerous or capable of having a harmful effect on human health or the environment. Nicotine and nicotine salts are hazardous waste under RCRA as an acute hazardous waste. An acute hazardous waste is a hazardous waste that is fatal to humans at low doses and has a known acute toxicity dose or is otherwise capable of causing or significantly contributing to an increase in serious irreversible, or incapacitating reversible, illness.

# Vaping Devices

## Nicotine Liquid and Cartridges- A Hazardous Waste (CONT)

The following are recommended ways for handling of vaping devices:

- Do not accumulate more than 2.2 pounds of nicotine containing cartridges. Accumulating 2.2 pounds of waste will trigger additional RCRA requirements.
- Properly label the storage container as “Hazardous Waste.”
- The total weight includes the entire cartridge, not just the liquid contents. It also includes the battery if it cannot be separated from the cartridge.
- Deliver the container of nicotine containing waste to a local hazardous waste facility at least every ninety days.
- Do not rinse the vaping devices containers to remove the nicotine containing liquid/residue. That water would become hazardous waste and then need to be stored and disposed of properly as hazardous waste.
- Handle unused and discarded vaping devices carefully to avoid exposure to unused nicotine. Liquid nicotine can be absorbed through the skin and can cause accidental poisoning.



## Lithium Ion Batteries- A Universal Waste

Batteries like those commonly found in vaping devices are a universal waste. Universal wastes are a category of hazardous waste that are not subject to most hazardous waste requirements if handled correctly.

- Label the storage container as “Universal Waste” along with the type of waste and the date of the start of accumulation.
- Can accumulate waste on-site for up to one year, up to 11,000 lbs
- Do not dilute or treat the waste. This could be considered on-site treatment, which would require additional permitting from Division of Waste Management.



### Additional information on RCRA and hazardous wastes can be found below.

- What is a Hazardous Waste?  
<https://www.epa.gov/hw/learn-basics-hazardous-waste>
- Resource Conservation and Recovery Act Overview:  
<https://www.epa.gov/rcra/resource-conservation-and-recovery-act-rcra-overview>
- RCRA Listed Wastes:  
<https://www.epa.gov/hw/defining-hazardous-waste-listed-characteristic-and-mixed-radiological-wastes#listed>
- Categories of Hazardous Waste Generators:  
<https://www.epa.gov/hwgenerators/categories-hazardous-waste-generators#large>
- EPA Opinion Letter on e-liquid as a hazardous waste:  
<https://rcrapublic.epa.gov/files/14850.pdf>

### Have additional questions?

- Kentucky Division of Waste Management Hazardous Waste Branch:  
<https://eec.ky.gov/Environmental-Protection/Waste/hazardous-waste/Pages/default.aspx>
- Environmental Compliance Assistance Program:  
<https://eec.ky.gov/Environmental-Protection/Compliance-Assistance/Pages/default.aspx>

The information in this document is offered only as general guidance. It is not a substitute for reading and understanding Kentucky's statutes and regulations governing the applicability and issuance of environmental permits. Specific requirements may vary with location. ECAP is not authorized to relieve any person from any requirement of federal regulations or Kentucky law through this document.

